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salts as culture media. *Polytrichum commune* could neither be germinated in darkness in the solutions of inorganic salts nor by the addition of organic iron salts to the fluids. Moss spores have been germinated in darkness under chemical stimuli by both HEALD and TRÉBOUX. LAAGE is the first to report germination of fern spores by means of chemical stimuli.—W. J. G. LAND.

**Artificial apospory in ferns.**—GOEBEL<sup>17</sup> has published the result of his studies on apospory in ferns and on regeneration in *Vicia* and *Phaseolus*. The main part of his paper is devoted to apospory and a very brief account is given of regeneration in *Vicia*.

Contrary to BOWER's statement that attempts to induce apospory, though successful in certain mosses, have been entirely without results in ferns, GOEBEL succeeded in inducing artificially aposporous prothallia from primary leaves of sporophytes in many forms among ferns, such as *Aneimia Drageana*, *Alsophila van Geertii*, *Ceratopteris thalictroides*, *Gymnogramme chrysophylla*, *Polypodium aureum*, *Pteris longifolia*, and others. On certain parts of the under surface, of margin or of petiole of the primary leaf, there are produced prothallia, sporophytes, or even structures which really seem to be intermediate between sporophyte and prothallium by their having stomata and antheridia.

GOEBEL drew three conclusions from his studies: (1) regeneration is more active in a young leaf than an older one; (2) the sporophytic structure is not the constant product of regeneration; (3) there seems to exist no great difference between the nuclei of prothallia and those of sporophytes, and accordingly no sharp distinction between the  $x$  and  $2x$  generations. He adds, one might regard the prothallium, phylogenetically, as a rudimentary leaf bearing sexual organs, though to determine this question further investigation is necessary.

Among the three conclusions drawn by GOEBEL, the third is a great problem. He does not enter in his paper into nuclear detail at all; therefore, cytologically it is still an open question.—SHIGÉO YAMANOUCHI.

**Items of taxonomic interest.**—W. H. BLANCHARD (*Torreya* 7:97-102. 1907), in discussing the eastern species of *Amelanchier*, describes 2 new species.—N. L. BRITTON (*idem* 102) has described a new Mexican species of *Ribes*.—H. D. HOUSE (*idem* 133-136), in a second paper on southern violets, has described a new species and a new hybrid.—W. H. BLANCHARD (*idem* 139, 140) has described a new *Rubus* (red raspberry) from Vermont.—E. BRAINERD (*Rhodora* 9:93-98. 1907) has begun a presentation of the older types of North American violets.—L. M. UNDERWOOD (*Bull. Torr. Bot. Club* 34:243-262. 1907), in continuation of his studies on "American ferns," has published a preliminary review of the N. Am. Gleicheniaceae, all the species being referred to *Dicranopteris*, in which 18 species are recognized, 5 being described as new, and all the rest being transferred.—C. L. SHEAR (*Bull. Torr. Bot. Club* 34:305-317. 1907) has described 21 new

<sup>17</sup> GOEBEL, K., Experimentell-morphologische Mitteilungen: 1. Künstlich hervorgerufene Aposporie bei Farnen. 2. Ueber die Bedingungen der Wurzelregeneration bei einigen Pflanzen. Sitz. Kön. Bayer. Akad. Wiss. 37:119-138. figs. 13. 1907.